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9 October 1967

MEMORANDUM FOR THE RECORD

SUBJECT: Visit to Edwards AFB and LAC, Burbank, on  
3-4 October 1967.

1. The following items and appropriate comments resulted from discussions with [ ] at Edwards AFB. 25X1

a. The Triple Display Indicator (TDI) which digitally presents indicated airspeed, Mach number, and altitude is the primary flight instrument used by the pilot. The TDI operates off of the Air Data Computer (ADC) which obtains pressure data from a pitot head on the lower right side of the aircraft and from static ports. The ADC also provides rate of climb and free air temperature as cockpit displays. A completely independent pitot-static system on the lower left side of the aircraft provides the pressure data for the standard type of cockpit instruments, i.e., airspeed indicator and altimeter. This system also supplies the necessary [ ] information and operates a speed warning pressure switch.

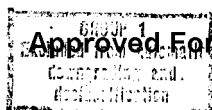
b. With reference to the Radar Cross Section (RCS) tests desired by Headquarters on 20 October, this would require getting off some representative sustained/flights at an acceptable altitude to verify that the vehicle will perform satisfactorily for long durations prior to the actual tests against the range. However, this would require reorienting the present test program which now is to solve known problems, to sequentially check out other systems and to solve additional problems as they occur. Any deviation from the established plan will extend the overall test program. [ ] did say, however, that any such decision would have to come from Burbank. 25X1

c. With reference to the airspeed calibration problem, a rake has been installed between the two

USAF review(s) completed.

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pitot heads in order to measure the thickness of the boundary layer at that fuselage station. It appears that the pitot arms may have to be extended to remove them from the influence of the boundary layer. No final configuration has yet been reached.

2. At Burbank, the following items were discussed with

a. Assymetric fuel flow from the wings in the automatic mode is still a problem. Periodic manual transfer is required. This item is still under investigation.

b. Excessive fuel tank pressure is also a problem. The proposed solution is to add another snuffle valve (relief valve) in parallel with the present valve on each side of the aircraft and also to reduce the activation pressure from 2.0 psi to 1.5 psi. The tank maximum allowable pressure is 3.0 psi and there is nothing magic about the originally designed 2.0 psi level.

c. The comments in Kelly Johnson's progress report about better stability, maneuverability, etc., are all qualitative based only on pilot comments. Instrumented stability and control tests have not yet been started and with limited experience in the U-2C, it might be wise to wait for instrumented test data before making any comparisons. The auto pilot has not yet been flown. To date, LAC has been running ground checks on the wiring, responses, gains, etc.

d. stated that Headquarters should establish the priority of the proposed RCS tests and direct LAC accordingly. LAC can do the tests if directed.

e. I reviewed a copy of a turning rate capability curve which will be submitted to Kelly Johnson prior to insertion in the model specification. The curve would be preceeded by the following statement:

"Coordinated turns without buffet at cruise Mach number and initial altitude. Will increase as altitude is lost."

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The curve will give a U-2C turning rate of 0.6 deg/sec at a 12 deg. bank angle and a U-2R turning rate of 1.2 deg/sec at a 25 deg. bank angle. It will be left to the reader to draw the conclusion that the U-2R turning rate is approximately twice that of the U-2C. However, the values are considerably less than the 1.2 and 3.0 deg/sec used in the vulnerability studies by OSI. It is the LAC contention that they have repeatedly maintained that the U-2R would be more maneuverable than the U-2C, but at no time have official absolute values been assigned to these capabilities. D/R&D available records appear to substantiate this position.

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Aircraft Systems Division  
Deputy for  
Research and Development  
Special Activities

ASD/R&D/OSA [redacted] b7c (9 Oct 67)

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